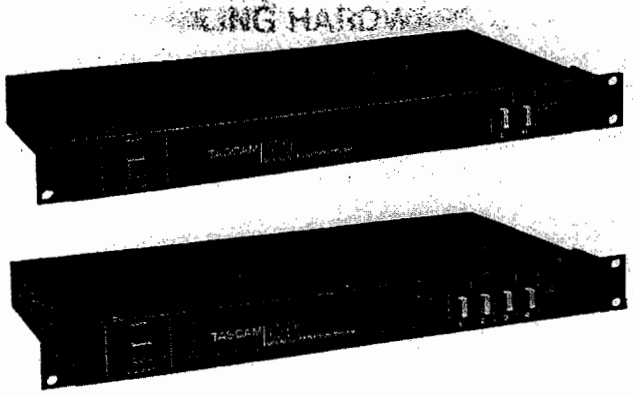

TASCAM

TEAC Production Products

TEAC -00472

SERVICE MANUAL

DX-2D/DX-4D

DBX Noise Reduction Systems

DX-8DS gleiche DBX Karte
520008 5100

Effective: October, 1982 Q20136

570401580

DX-2D/DX-4D

TASCAM

TEAC Production Products

TEAC CORPORATION	3-7-3 NAKA-CHO MUSASHINO TOKYO PHONE (0422) 53-1111
TEAC CORPORATION OF AMERICA	7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303
TEAC AUSTRALIA PTY., LTD.	115 WHITEMAN STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

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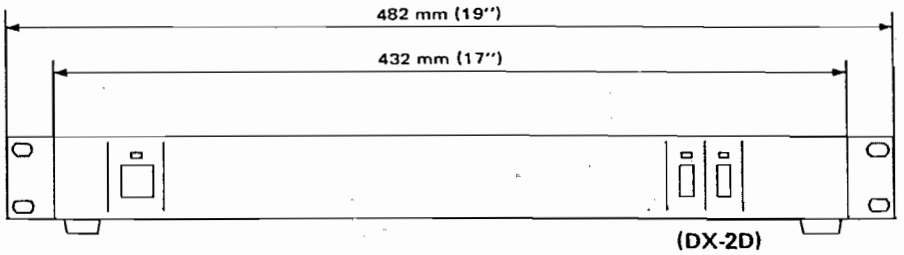
NOTES:
1. Parts marked with * require longer delivery time than regular parts.
2. Parts marked with ⚠ are safety critical components. They must always be replaced with components specified by TEAC.
3. 0 dBV is referenced to 1 V.
4. PC Boards shown viewed from electro-parts side.
5. All resistors are 1/4 W, + 5%, unless marked otherwise. Resistor values are in ohms (k = 1000 ohms).
6. Capacitor values are in microfarads (p = picofarads).
7. Changes in specifications and features may be made without notice or obligation.

1. SPECIFICATIONS

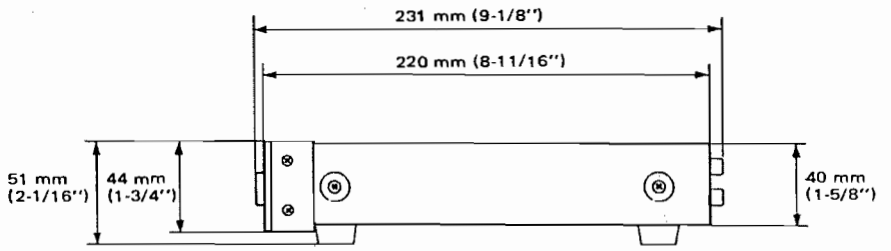
Number of Channels		
DX-2D	2 channels (2 Encode/2 Decode, separate controls), Type I	
DX-4D	4 channels (4 Encode/4 Decode, separate controls), Type I	
Encoder Section		
Input	**Input Impedance**	50k ohms
	Nominal input level	- 10 dB (0.3 V)
	Maximum input level	+ 16 dB (6.3 V)
Output	**Output impedance**	220 ohms
	Nominal load impedance	50k ohms
	Minimum load impedance	4k ohms
	Nominal output level	- 10 dB (0.3 V)
	Maximum output level	+ 16 dB (6.3 V)
Decoder Section		
Input	**Input impedance**	50k ohms
	Nominal input level	- 10 dB (0.3 V)
	Maximum input level	+ 16 dB (6.3 V)
Output	**Output impedance**	220 ohms
	Nominal load impedance	50k ohms
	Minimum load impedance	4k ohms
	Nominal output level	- 10 dB (0.3 V)
	Maximum output level	+ 16 dB (6.3 V)
Frequency Response	40 Hz – 15 kHz, ±1 dB 30 Hz – 20 kHz, +1.5 dB, -2 dB	
Distortion (Back to Back)	0.2 % max. at 1 kHz, 0.8 % max. at 100 Hz	
Noise Reduction	More than 30 dB	
Dynamic Range	100 dB	
Power Requirements	100/120/220/240 V AC, 50/60 Hz, 6 W (DX-2D)/10 W (DX-4D) (General Export Model) 120 V AC, 60 Hz, 6 W (DX-2D)/10 W (DX-4D) (U.S.A./Canada Model) 220 V AC, 50 Hz, 6 W (DX-2D)/10 W (DX-4D) (Europe Model) 240 V AC, 50 Hz, 6 W (DX-2D)/10 W (DX-4D) (UK/AUS Model)	
Dimensions (W x H x D)	482 x 51 x 231 mm (19" x 2-1/16" x 9-1/8")	
Weight	Approx. 3.5 kg (8 lbs)	

In these specifications, 0 dBV is referenced to 1 V.
Input/output levels of the Encoder/Decoder are measured at 1 kHz.
Changes in specifications and features may be made without notice or obligation.

- All recorder/reproducer illustrations are of the TASCAM 30 series.

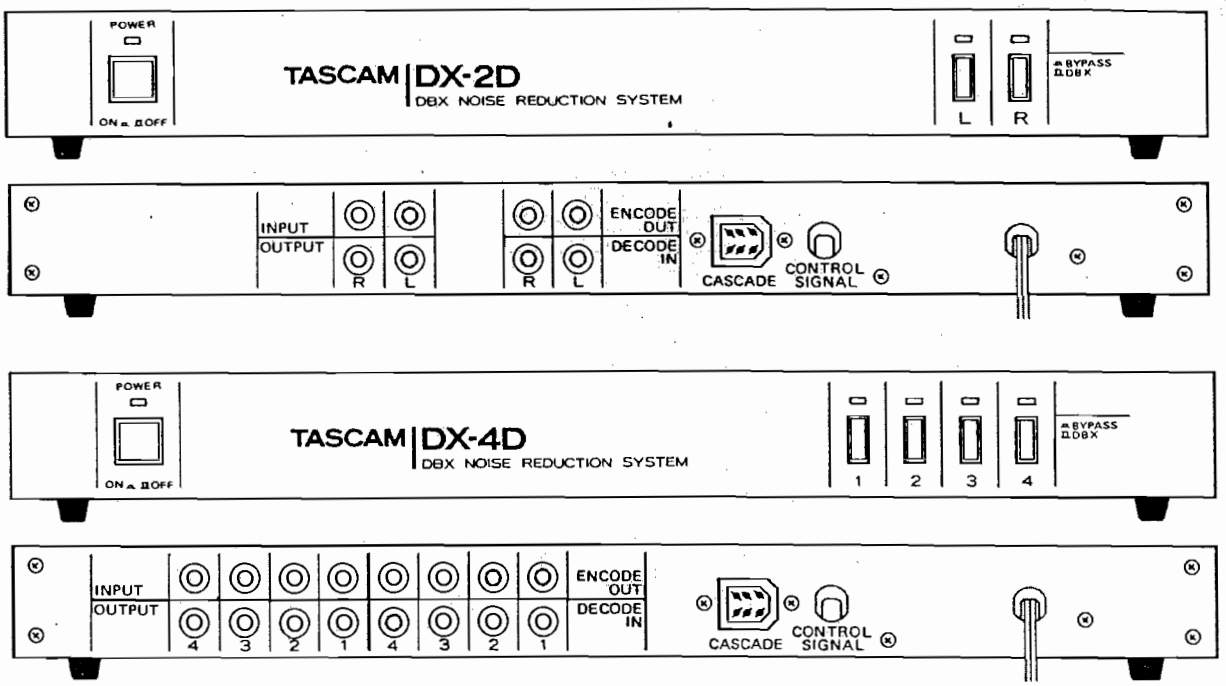


(DX-2D)



Note: Feet are detachable.

2. FEATURES AND CONTROLS



POWER Switch
When depressed (⏏ ON), the LED above lights. Press again (⏏ OFF) to turn off.

DBX/BYPASS Switches
Allow independent operation of each channel.

DBX (⏏) : When set to this position, an LED lights, and the DBX circuit is engaged to activate the ENCODE/DECODE function.

BYPASS (⏏) : When depressed, the DBX circuit is bypassed, which deactivates the ENCODE/DECODE function. Used when certain specified tracks are not to be processed, or when tape operation does not call for DBX operation.

DECODE IN Terminals
Receive the output signal of the recorder/reproducer for decoding.

ENCODE OUT Terminals
Feed the encoded output signal to the INPUT (LINE IN) terminals of the recorder/reproducer.

INPUT Terminals
Signals connected here are fed to the INPUT (LINE IN) terminals of the recorder/reproducer after being encoded. Encoding is only possible if the DBX/BYPASS switch has been switched to the DBX (⏏) position.

OUTPUT Terminals
The encoded signal is sent via the OUTPUT terminals of the recorder/reproducer to the DECODE IN terminals of the DX-2D/DX-4D and then fed to the OUTPUT terminals of the same.

CONTROL SIGNAL Connector
As this connector is so designed to be interfaced with the DBX UNIT CONTROL SIGNAL connector on a TASCAM Series recorder/reproducer, be sure that the same series is used, otherwise, the DX-2D/DX-4D can not be operated.

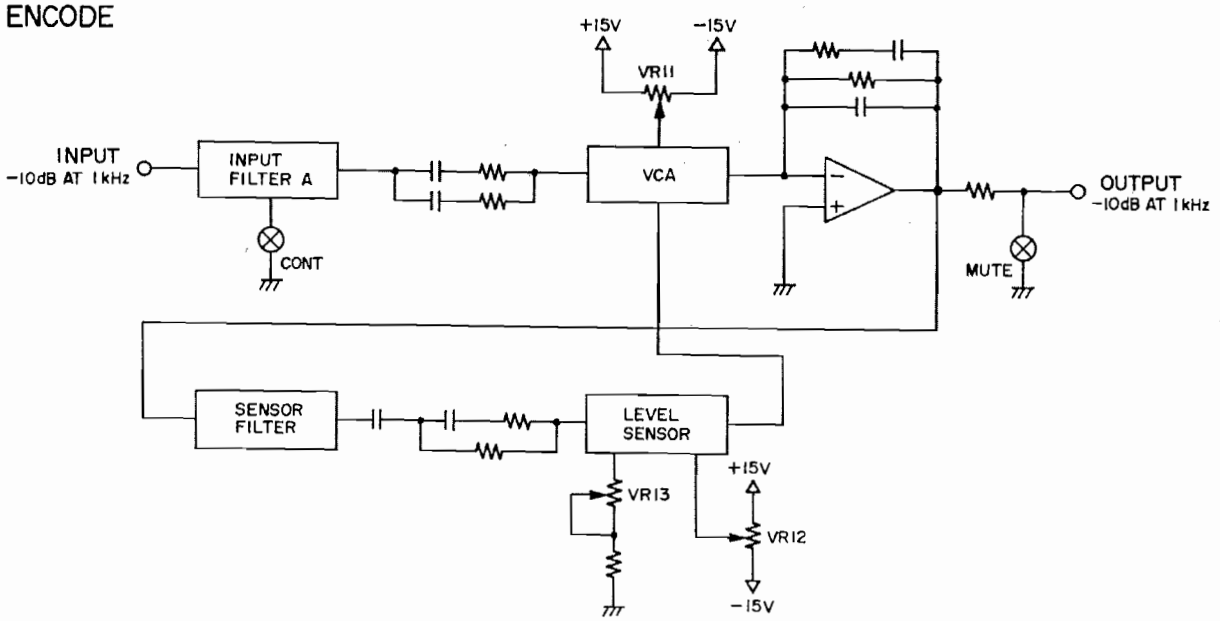
***NOTE:**
The DX-2D/DX-4D is inoperative unless the CONTROL SIGNAL is connected to the DBX UNIT CONTROL SIGNAL.

***NOTE:**
This noise reduction system is to be utilized with a TASCAM Series recorder/reproducer.

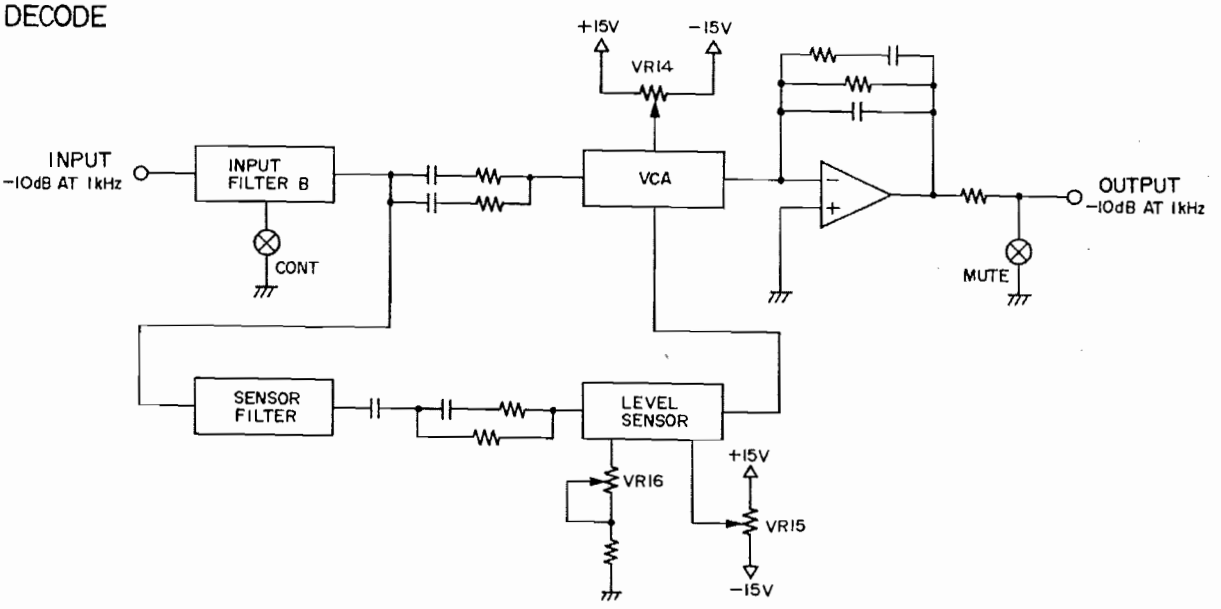
CASCADE Connector
Allows connection of an additional DBX NR SYSTEM to increase the number of channels to a maximum of 6 with a DX-2D and DX-4D combination and 8 when two DX-4Ds are used, but cascade connections are only possible up to two units.

3. BLOCK DIAGRAM

ENCODE



DECODE



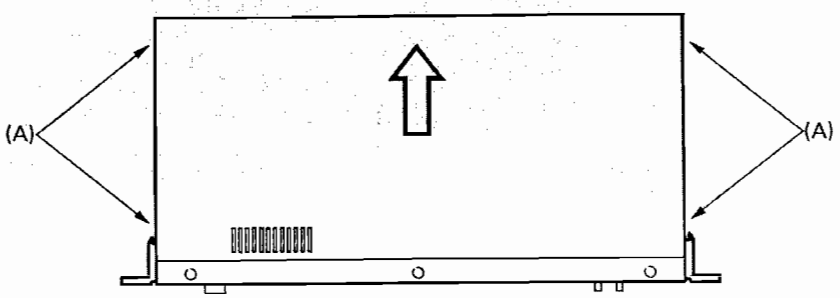
4. BEFORE MAKING ANY CHECKS AND ADJUSTMENTS

All necessary adjustments have been completed at the factory prior to shipment, and therefore, further adjustments to the dbx amplifier will not be required unless the DBX PCB Ass'y is replaced for specific reasons.

4-1. Bonnet Removal

1) Remove the four retaining screws (A) holding the left and right side panels.
2) Pull the bonnet in the direction of the arrow to remove.

O OUTPUT
-10dB AT 1kHz



4-2. Connections

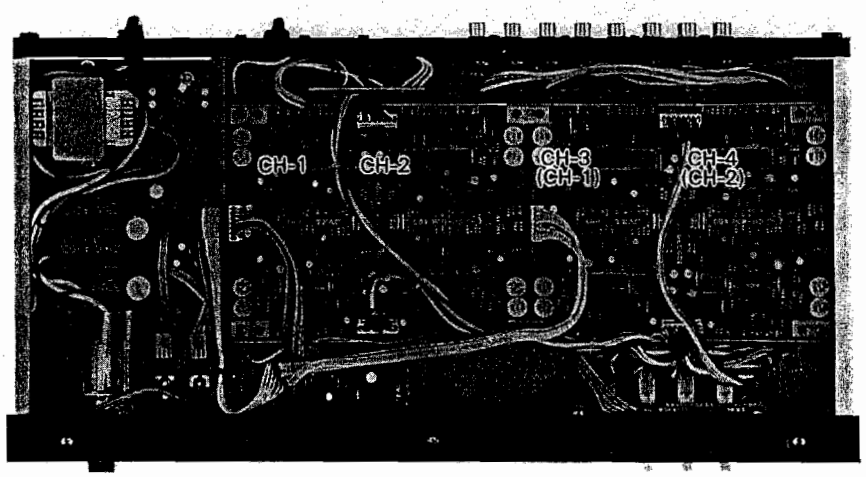
-O OUTPUT
-10dB AT 1kHz

1) Make all necessary connections between the DX-2D/DX-4D and the TASCAM recorder/reproducer that's to be used. Then apply power to both units.
2) Depending on which electrical check or adjustment that's to be performed, connect the low-distortion oscillator and attenuator to the input side and the level meter, distortion meter and oscilloscope to the output side and/or TP-1 ~ 4 test points.
3) Finally, set the DX-2D/DX-4D DBX BYPASS switch to the DBX position (⊓).

5. DBX AMPLIFIER

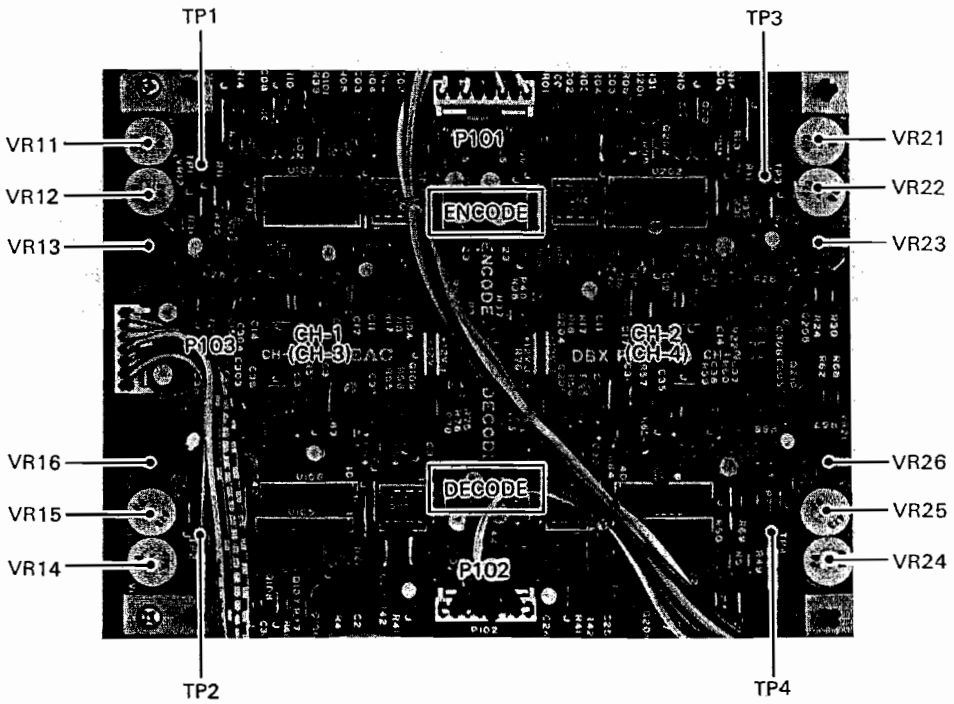
5-1. Channel Arrangement

The DX-2D is a 2-channel system and the DX-4D is a 4-channel system, which repective channel disposal (CH1 ~ 2), (CH1 ~ 4) are shown in the below illustration. When the bonnet is completely removed, the DBX PCB Ass'y will be exposed showing channel arrangement with two channels sharing one PCB.



Front Panel

(depicts DX-4D)



5-2. DBX PCB Ass'y Terminals

Connector	Pin No.	HOT/COLD	
P 101	1	H	Channel 1, ENCODER input
	2	C	
	3	H	Channel 1, ENCODER output
	4	C	
	5	C	Channel 2, ENCODER output
	6	H	
	7	C	Channel 2, ENCODER input
	8	H	
P 102	1	H	Channel 1, DECODER input
	2	C	
	3	H	Channel 1, DECODER output
	4	C	
	5	C	Channel 2, DECODER output
	6	H	
	7	C	Channel 2, DECODER input
	8	H	
P 103	1		SIGNAL CONTROL
	2		MUTE
	3		+12.6V
	4		0V
	5		−12.6V
	6		SIGNAL CONTROL
	7		MUTE

5-3. VR and TP Maintenance Application

Designators	Rating	Function
VR 11	47 kΩ (B)	Channel 1 [3] – ENCODE – for distortion adjustments
VR 14	〃	Channel 1 [3] – DECODE – 〃
VR 21	〃	Channel 2 [4] – ENCODE – 〃
VR 24	〃	Channel 2 [4] – DECODE – 〃
VR 12	〃	Channel 1 [3] – ENCODE – for symmetrical adjustments
VR 15	〃	Channel 1 [3] – DECODE – 〃
VR 22	〃	Channel 2 [4] – ENCODE – 〃
VR 25	〃	Channel 2 [4] – DECODE – 〃
VR 13	470 kΩ (B)	Channel 1 [3] – ENCODE – for output level adjustments
VR 16	〃	Channel 1 [3] – DECODE – 〃
VR 23	〃	Channel 2 [4] – ENCODE – 〃
VR 26	〃	Channel 2 [4] – DECODE – 〃
TP-1	Channel 1 [3] – ENCODE – U103-pin 7 – for symmetrical and release rate checks	
TP-2	Channel 1 [3] – DECODE – U106-pin 7 – 〃	
TP-3	Channel 2 [4] – ENCODE – U203-pin 7 – 〃	
TP-4	Channel 2 [4] – DECODE – U206-pin 7 – 〃	

[ ] indicates DX-4D.

6. CHECKS AND ADJUSTMENTS

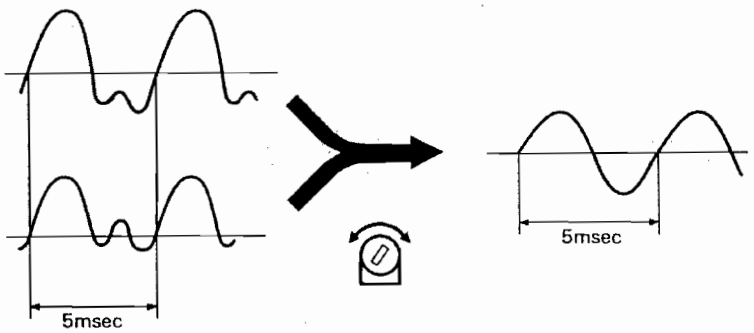
This section describes the checks and adjustment procedures for channel L (CH-1). The same procedures should be followed for channel R (CH-2) [or channel 2, 3, 4 for the DX-4D].

6-1. Encode

1. Output Level Adjustments
Apply a nominal input signal of 1 kHz, –10 dBV (0.3V) to INPUT L [1] on the rear panel of the unit, and adjust VR13 for an output signal of –10 dBV at ENCODE OUT L [1].

2. Distortion Adjustments
Connect a distortion meter to ENCODE OUT L [1], and adjust VR11 for minimum distortion at 1 kHz.

3. Symmetrical Adjustments
1) Apply a 100 Hz, –10 dBV (0.3V) input signal to INPUT L [1], and connect a level meter and an oscilloscope between TP-1 (pin 7 on U103) and the chassis (for ground). Then adjust VR12 to rectify the 200 Hz ripple wave appearing at TP-1 into a sine wave as shown in the below illustration.
2) After completion, check the output level once again as described in step 1, and if corrections are required, correct by adjusting VR13.



4. Frequency Response
Apply a –10 dBV (0.3V) input signal at 100 Hz, 1 kHz and 10 kHz to INPUT L [1], and confirm that the output level of each frequency at ENCODE OUT L [1] remains within the specified limits shown below when 1 kHz is referenced as 0 dB.

100 Hz : –2.5 dB ± 1 dB
1 kHz : 0 dB
10 kHz : –4.5 dB ± 1 dB

5. Signal-to-Noise Ratio
Short-circuit INPUT L [1], and connect a level meter to ENCODE OUT L [1] through a 20 Hz ~ 20 kHz DIN filter. Then raise the sensitivity of the level meter and measure the signal-to-noise ratio. The measured results should be 40 dB or greater.

6. Linearity
Apply a 1 kHz, –60 dBV (1 mV) input signal to INPUT L [1], and check that the output level at ENCODE OUT L [1] is –25 dB ±1 dB against the nominal output level (–10 dBV). Then check that the output level at ENCODE OUT L [1] is +10 dB ±1 dB against the nominal output signal when a +10 dBV (3V) input signal is applied.

7. Release Rate
Apply a 1 kHz, –10 dBV (0.3V) tone burst input signal (8 cycle ON, 128 OFF) to INPUT L [1], and connect a DC-coupled oscillator between TP-1 (pin 7 on U103) and the chassis (for ground). Then confirm that the declivity of the TP-1 output waveform is 750 mV/sec. ±10% at tone burst OFF (128 cycle OFF). Adjust C120, R133 for channel L [1] and C220, R233 for channel R [2] when waveform adjustments become necessary.

8. Channel R (CH-2) [2, 3, 4]
For channel R (CH-2) [2, 3, and 4 for the DX-4D] checks and adjustment procedures, repeat the same procedures (1 ~ 7) just described.

6-2. Decode

1. Output Level Adjustments
Apply a nominal input signal of 1 kHz, –10 dBV (0.3V) to DECODE IN L [1], and adjust VR16 for an output signal of –10 dBV at OUTPUT [1] terminal.

2. Distortion Adjustments
Connect a distortion meter to OUTPUT L [1], and adjust VR14 for minimum distortion at 1 kHz.

3. Symmetrical Adjustments

1) Apply a 100 Hz, −10 dBV (0.3V) input signal to DECODE IN L [1], and connect a level meter and an oscilloscope between TP-2 (pin 7 on U106) and the chassis (for ground). Then as in 6-1 (3), adjust VR15 to obtain sine wave.
2) After completion, check the output level again as described in step 1, and if corrections are required, correct by adjusting VR 16.

4. Frequency Response

Apply a −10 dBV (0.3V) input signal at 100 Hz, 1 kHz and 10 kHz to DECODE IN L [1], and confirm that the output level of each frequency at OUTPUT L [1] remains within the specified limits shown below when 1 kHz is referenced as 0 dB.

100 Hz : + 5.5 dB ± 1 dB
1 kHz : 0 dB
10 kHz : + 9 dB ± 1 dB

5. Signal-to-Noise Ratio

Short-circuit DECODE IN L [1], and connect a level meter to OUTPUT L [1] through a 20 Hz ~ 20 kHz DIN filter. Then raise the sensitivity of the level meter and measure the signal-to-noise ratio. The measured results should be 80 dB or greater.

6. Linearity

Apply a 1 kHz, −35 dBV (17.8 mV) input signal to DECODE IN L [1], and check that the output level at OUTPUT L [1] is −50 dB ± 1 dB against the nominal output level (−10 dBV). Then check that the output level at OUTPUT L [1] is +20dB ± 1 dB against the nominal output level when a 0 dBV (1V) signal is applied.

7. Release Rate

Apply a 1 kHz, −10 dBV (0.3V) tone burst input signal (8 cycle ON, 128 OFF) to DECODE IN L [1], and connect a DC-coupled oscillator between TP-2 (pin 7 on U106) and the chassis (for ground). Then confirm that the declivity of the TP-2 output waveform is 750 mV/sec. ±10% at tone burst OFF. Adjust C142, R171 for channel L [1] and C242, R271 for channel R [2] when waveform adjustments become necessary.

8. Channel R (CH-2) [2, 3, 4]

For channel R (CH-2) [2, 3 and 4 for the DX-4D] checks and adjustment procedures, repeat the same procedures (1 ~ 7) just described.

6-3. Overall (ENCODE – DECODE)

Run a jumper between ENCODE OUT L [1] and DECODE IN L [1]. INPUT L [1] serves as the input terminal and OUTPUT L [1] serves as the output terminal.

1. Output Level Check

Apply a 1 kHz, −10 dBV (0.3V) input signal to INPUT L [1], and check for a −10 dB (0.3V) ±1 dB output level at OUTPUT L [1].

2. Frequency Response

Apply a 1 kHz, −10 dBV (0.3V) input signal to INPUT L [1]. Then with the frequency varied between 30 Hz ~ 20 kHz, check that the output level at OUTPUT L [1] remains within the specified limits shown below when 1 kHz is referenced as 0 dB.

3. Signal-to-Noise Ratio

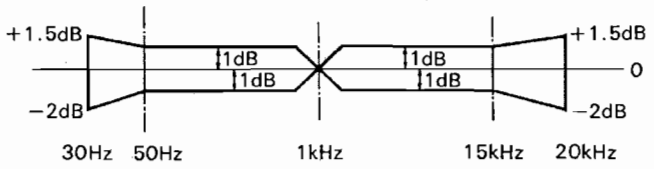
Short-circuit INPUT L [1], and connect a level meter to OUTPUT L [1] through a 20 Hz ~ 20 kHz DIN filter. Then raise the sensitivity of the level meter and measure the signal-to-noise ratio. The measured results should be 80 dB or greater.

4. Distortion Rate

Apply a 1 kHz, −10 dBV (0.3V) input signal to INPUT L [1], and measure the distortion rate of the output signal appearing at OUTPUT L [1]. The measured results should not be less than 0.2%.

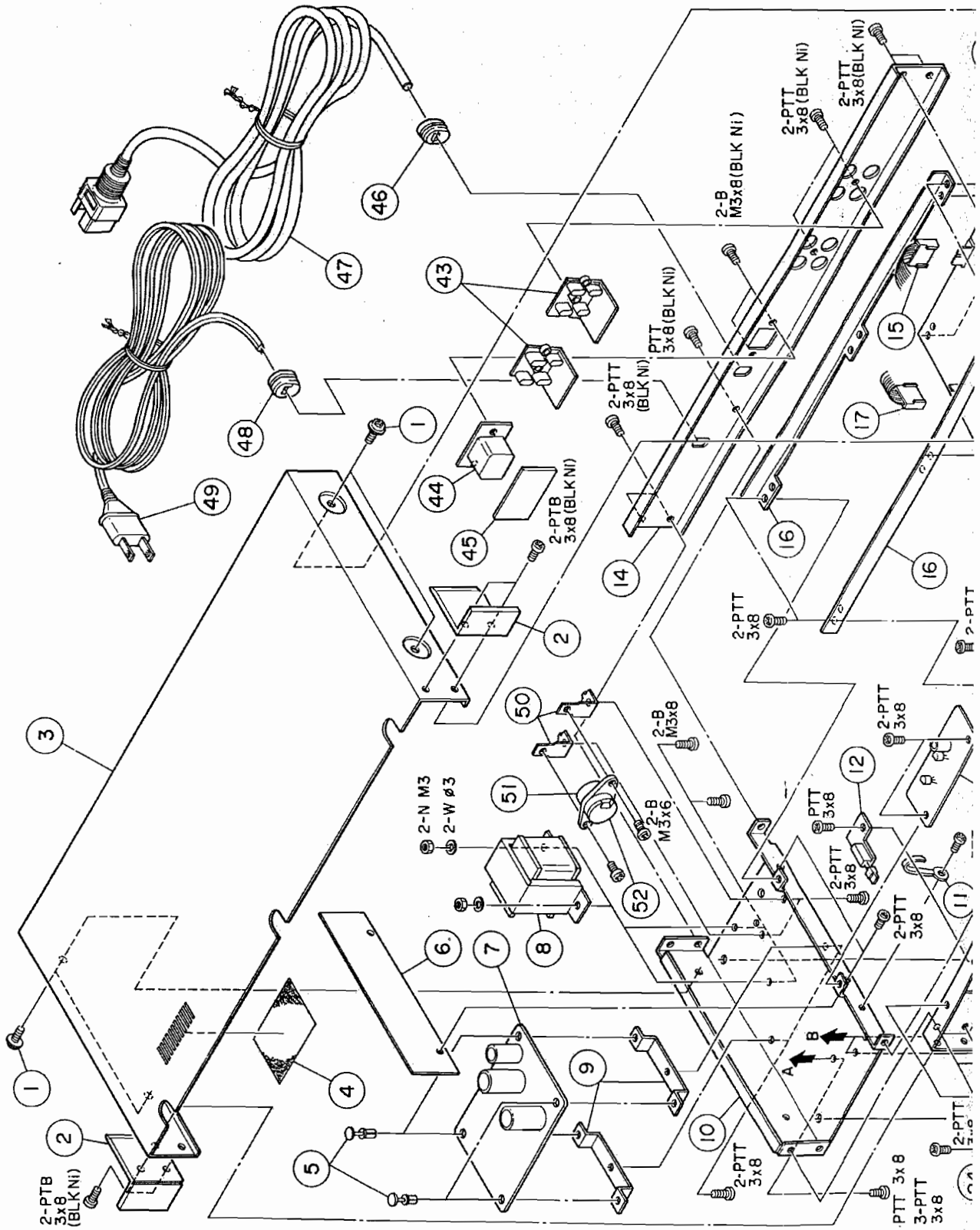
5. Channel R (CH-2) [2, 3, 4]

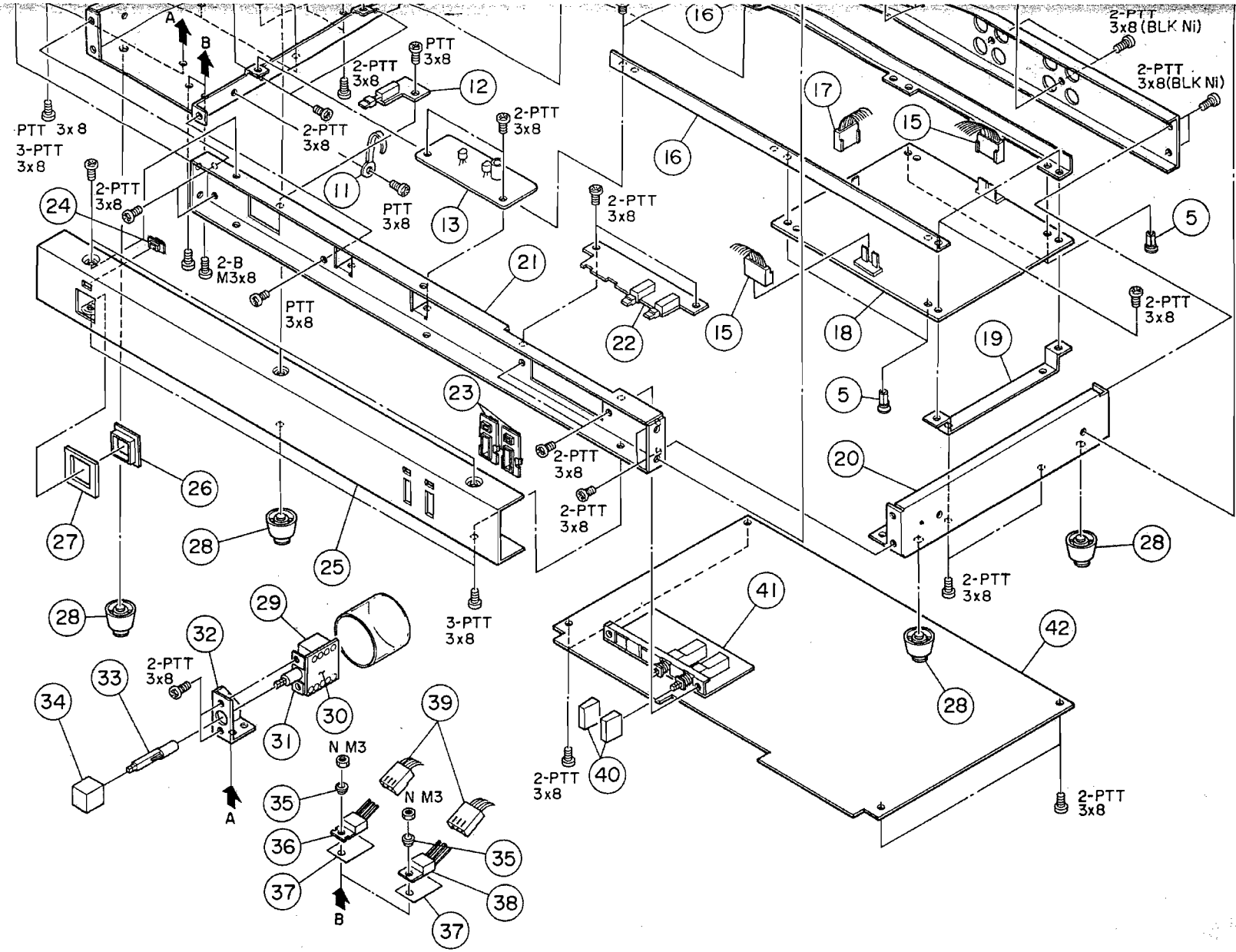
For channel R (CH-2) [2, 3 and 4 for the DX-4D] checks and adjustments, repeat the same procedures (1 ~ 4) just described.



7. EXPLODED VIEWS AND PARTS LISTS

DX-2D




A
B
PTT 3x8
3-PTT 3x8
2-PTT 3x8
2-B M3x8
2-PTT 3x8 (BLK Ni)
N M3
A
B

DX-2D

REF. NO.	PARTS NO.	DESCRIPTION	
1	*5781503008	Screw, Round Washer Head M3x8 (Black)	
2	*~~5800366000~~ 5800138200	Angle, Rack Mount; A	
3	*5800367000	Cover, Top	
4	*5800365600	Mask	
5	*5534878000	Rivet, Push	
6	*5800365901	Plate, Shield	
7	*5200085201	PCB Ass'y, Power Supply [J, U, C, GE]	
	*5200085211	PCB Ass'y, Power Supply [E, UK, A]	
8	⚠ *5320016900	Transformer, Power [J]	
	⚠ *5320017000	Transformer, Power [U, C]	
	⚠ *5320017100	Transformer, Power [GE]	
	⚠ *5320017200	Transformer, Power [E, UK, A]	
9	*5800365700	Bracket, PCB; B	
10	*5800366803	Side Chassis, L	
11	*5581038000	Clamper, Cord; A	
12	*5200085601	PCB Ass'y, LED B	
13	*5200085310	PCB Ass'y, Muting	
14	*5800367102	Panel, Rear; 2	
15	*5122170000	Connector, Socket; 8P	
16	*5800366201	Bracket, PCB; A	
17	*5122169000	Connector, Socket; 7P	
18	*5200085100	PCB Ass'y, DBX	
19	*5800365800	Bracket, PCB; C	
20	*5800366300	Side Chassis; R	
21	*5800366901	Chassis, Front	
22	*5200085500	PCB Ass'y, LED A2	
23	*5800287400	Escutcheon, BL	38
24	*5800366100	Eschtcheon, LED	
25	*5800366501	Panel, Front, TASCAM C	
26	*5800218400	Escutcheon, Power Switch	44
27	*5800365300	Spacer; A	
28	5730003000	Foot	
29	⚠ 5052907000	Spark Killer, 0.01μF+300Ω/300V [J, GE]	
	⚠ 5052910000	Spark Killer, 0.033μF+120Ω/125V [U]	
	⚠ 5292002600	Spark Killer, 0.033μF+120Ω/125V [C]	
	⚠ 5267702500	Spark Killer, 0.0047μF 250V±20% [E,UK,A]	

REF. NO.	PARTS NO.	DESCRIPTION	
30	*5210093600	PCB, Power Switch	
31	⚠ 5300027000	Switch, Push [J]	
	⚠ 5300027100	Switch, Push [U, C]	
	⚠ 5300027200	Switch, Push [E, UK, A]	
32	*5800365401	Bracket, Power Switch	
33	*5534713000	Rod, C	X-10R
34	5800173100	Button, Power	133
35	*5033295000	Tube, Insulation; P	
36	⚠ 5220413800	IC, μA79M12AUC; U302	
37	*5033291000	Plate, Insulation; IS-313D	
38	⚠ 5220413000	IC, NJM78M12A; U301	
39	*5122165000	Connector, Socket; 3P	
40	5800288200	Button	38
41	*5200085700	PCB Ass'y, Switch 2	
42	*5800365500	Cover	
43	*5200085900	PCB Ass'y, Jack	
44	*5122339000	Connector, Socket; 6P	
45	*5200098900	PCB Ass'y, Control	
46	*5534662000	Bushing, 5N-4	
47	*5128082000	Cord, Connector; 6P	
48	*5534660000	Bushing, 4N-4 [All except C, UK]	
	*5534661000	Bushing, 4K-1 [UK]	
	*5534662000	Bushing, 5N-4 [C]	
49	*5128034000	Cord, AC Power [J, GE]	
	*5128075000	Cord, AC Power [U]	
	*5350008100	Cord, AC Power [C]	
	*5350008200	Cord, AC Power [E]	
	*5128047000	Cord, AC Power [UK]	
	*5350008300	Cord, AC Power [A]	
50	*5800136900	Bracket, Selector [GE]	MM-20
51	5043506000	Socket, Voltage Selector [GE]	
52	5043299000	Plug, Voltage Selector [GE]	

[U] : U.S.A. [C] : CANADA [GE] : General Export [A] : AUSTRALIA [E] : EUROPE [UK] : U.K. [J] : JAPAN

DX-4D

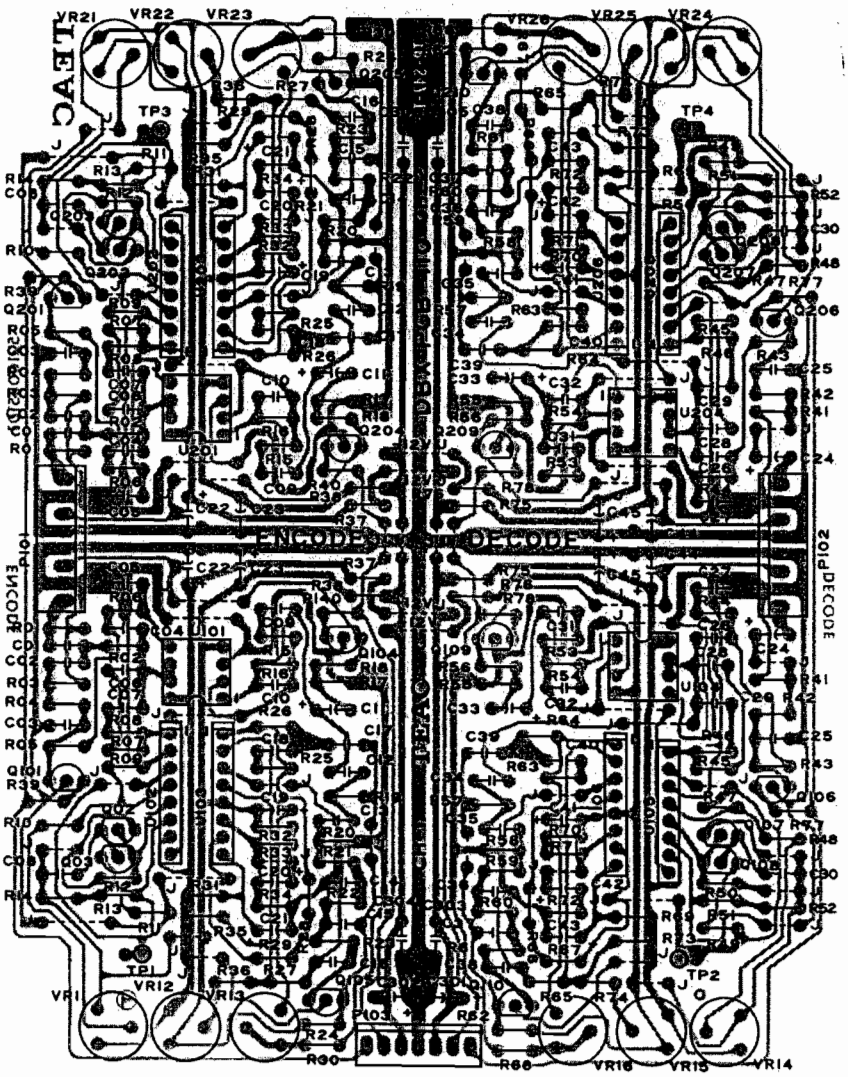
REF. NO.		PARTS NO.	DESCRIPTION
1		*5781503008	Screw, Round Washer Head M3x8 (Black)
2		*5800366000	Angle, Rack Mount; A
3		*5800367000	Cover, Top
4		*5800365600	Mask
5		*5534878000	Rivet, Push
6		*5800365901	Plate, Shield
7		*5200085201	PCB Ass'y, Power Supply [J, U, C, GE]
		*5200085211	PCB Ass'y, Power Supply [E, UK, A]
8	⚠	*5320016900	Transformer, Power [J]
	⚠	*5320017000	Transformer, Power [U, C]
	⚠	*5320017100	Transformer, Power [GE]
	⚠	*5320017200	Transformer, Power [E, UK, A]
9		*5800365700	Bracket, PCB; B
10		*5800366803	Side Chassis, L
11		*5581038000	Clamper, Cord; A
12		*5200085601	PCB Ass'y, LED B
13		*5200085310	PCB Ass'y, Muting
14			(not applicable)
15		*5122170000	Connector, Socket; 8P
16		*5800366201	Bracket, PCB; A
17		*5122169000	Connector, Socket; 7P
18		*5200085100	PCB Ass'y, DBX
19		*5800365800	Bracket, PCB; C
20		*5800366300	Side Chassis; R
21		*5800366901	Chassis, Front
22		*5200085400	PCB Ass'y, LED A4
23		*5800287400	Escutcheon, BL 38
24		*5800366100	Eschtcheon, LED
25		*5800366401	Panel, Front, TASCAM
26		*5800218400	Escutcheon, Power Switch 44
27		*5800365300	Spacer; A
28		5730003000	Foot
29	⚠	5052907000	Spark Killer, 0.01μF+300Ω/300V [J, GE]
	⚠	5052910000	Spark Killer, 0.033μF+120Ω/125V [U]
	⚠	5292002600	Spark Killer, 0.033μF+120Ω/125V [C]
	⚠	5267702500	Spark Killer, 0.0047μF 250V±20% [E,UK,A]

REF. NO.		PARTS NO.	DESCRIPTION
30		*5210093600	PCB, Power Switch
31	⚠	5300027000	Switch, Push [J]
	⚠	5300027100	Switch, Push [U, C]
	⚠	5300027200	Switch, Push [E, UK, A]
32		*5800365401	Bracket, Power Switch
33		*5534713000	Rod, C X-10R
34		5800173100	Button, Power 133
35		*5033295000	Tube, Insulation; P
36	⚠	5220413800	IC, μA79M12AUC; U302
37		*5033291000	Plate, Insulation; IS-313D
38	⚠	5220413000	IC, NJM78M12A; U301
39		*5122165000	Connector, Socket; 3P
40		5800288200	Button 38
41		*5200085800	PCB Ass'y, Switch 2
42		*5800365500	Cover
43		*5200085900	PCB Ass'y, Jack
44		*5122339000	Connector, Socket; 6P
45		*5200098900	PCB Ass'y, Control
46		*5800367202	Panel, Rear; 4
47		*5534662000	Bushing, 5N-4
48	⚠	*5128082000	Cord, Connector; 6P
49		*5534660000	Bushing, 4N-4 [All except C, UK]
		*5534661000	Bushing, 4K-1 [UK]
		*5534662000	Bushing, 5N-4 [C]
50	⚠	*5128034000	Cord, AC Power [J, GE]
	⚠	*5128075000	Cord, AC Power [U]
	⚠	*5350008100	Cord, AC Power [C]
	⚠	*5350008200	Cord, AC Power [E]
	⚠	*5128047000	Cord, AC Power [UK]
	⚠	*5350008300	Cord, AC Power [A]
51		*5800136900	Bracket, Selector [GE] MM-20
52		5043506000	Socket, Voltage Selector [GE]
53		5043299000	Plug, Voltage Selector [GE]

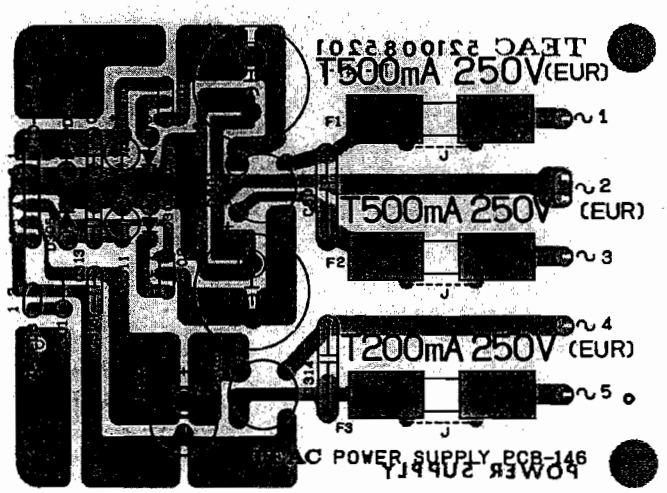
[U] : U.S.A. [C] : CANADA [GE] : General Export [A] : AUSTRALIA [E] : EUROPE [UK] : U.K. [J] : JAPAN

8. PC BOARDS AND PARTS LISTS

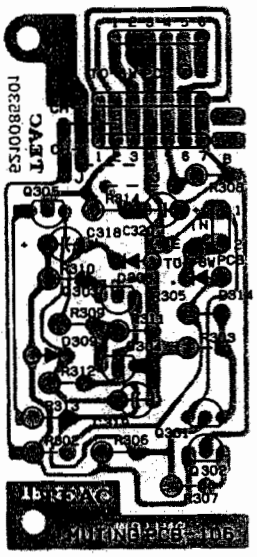
DBX PCB ASS'Y

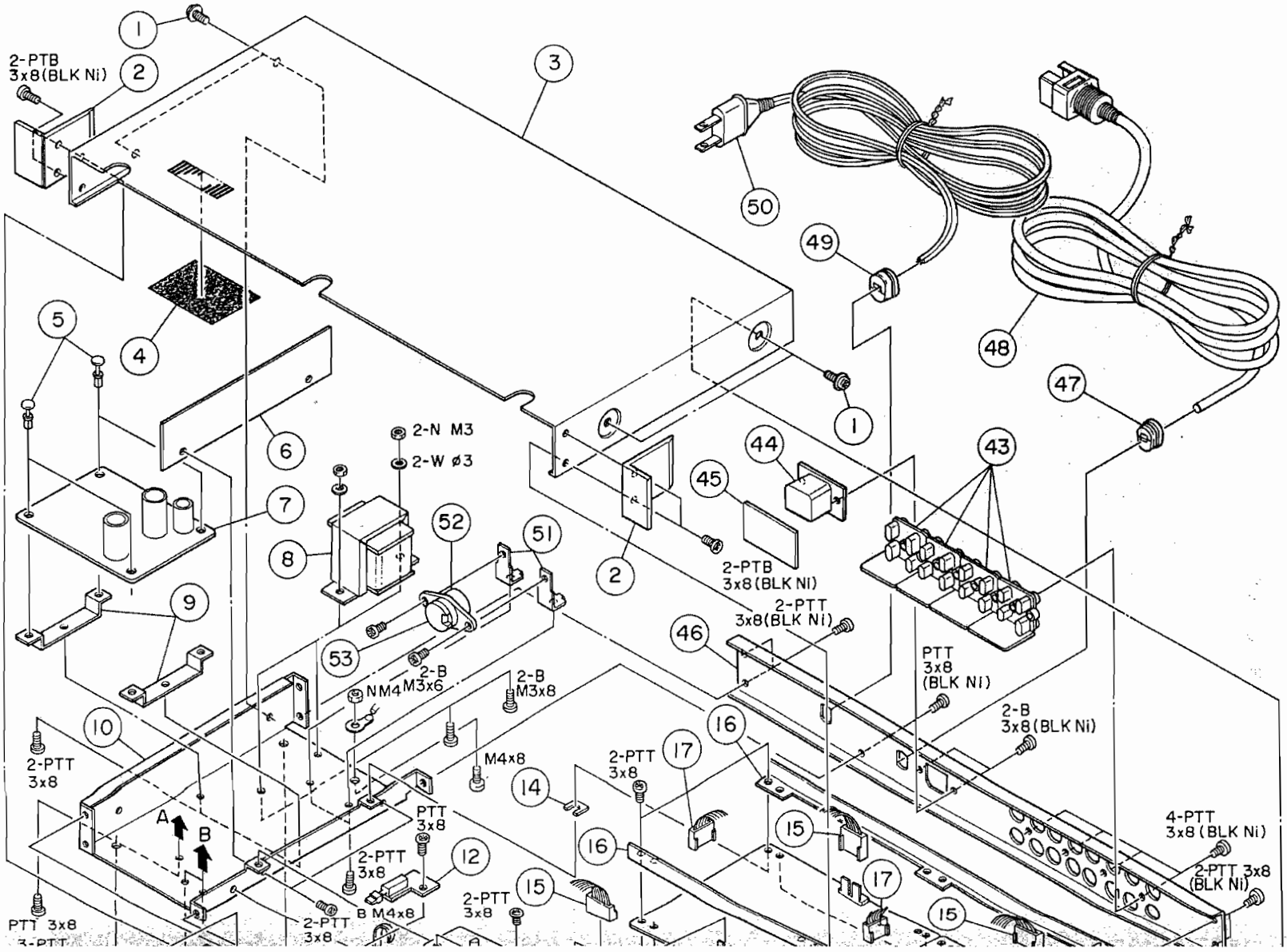


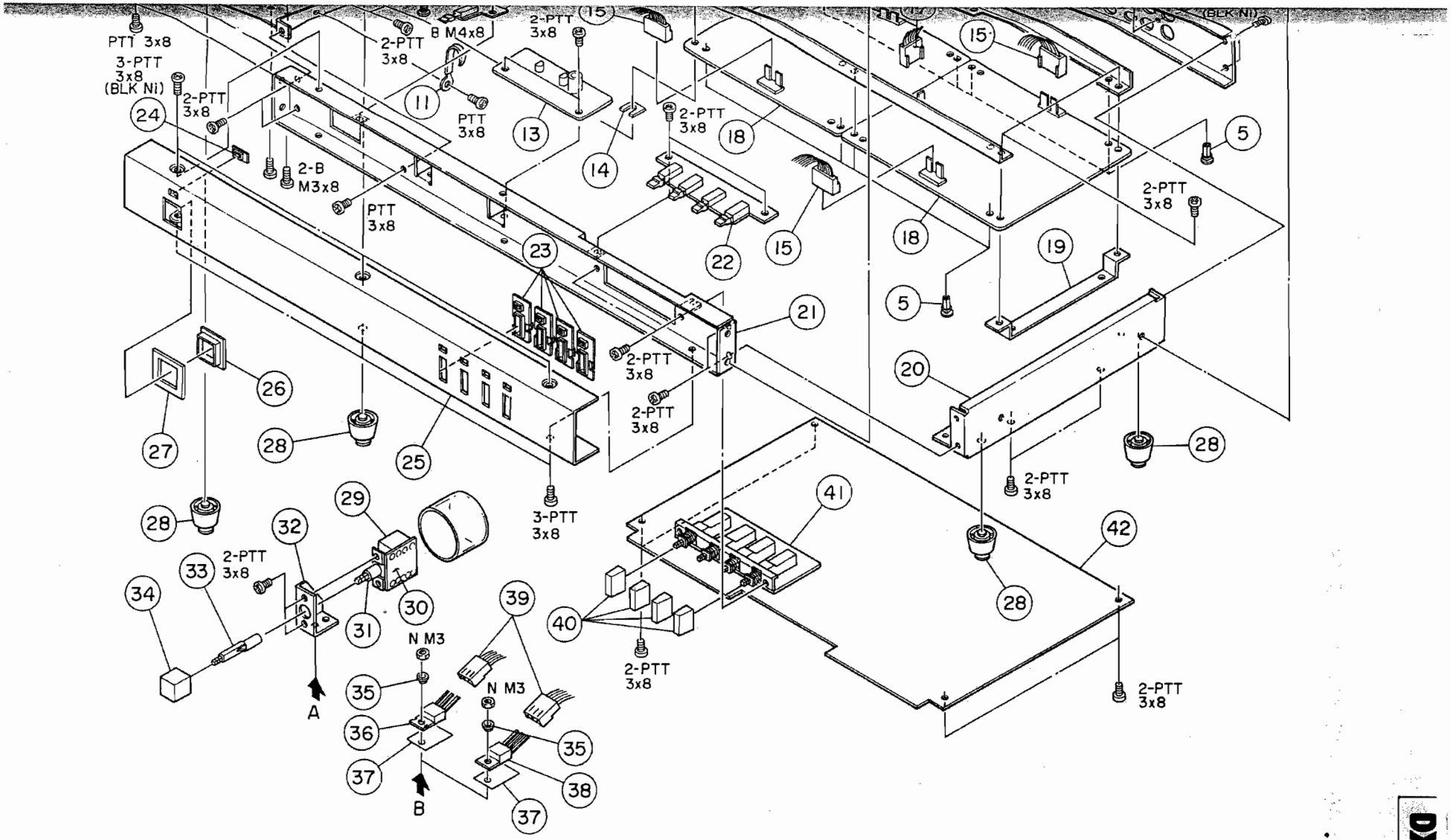
POWER SUPPLY PCB ASS'Y



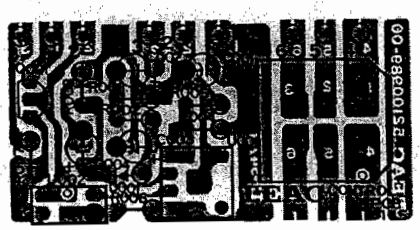
MUTING PCB ASS'Y



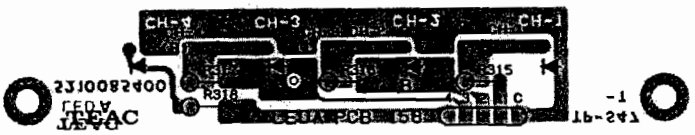

2-PTB 3x8(BLK Ni)
2-N M3
2-W ø3
2-PTB 3x8(BLK Ni)
2-PTT 3x8(BLK Ni)
PTT 3x8 (BLK Ni)
2-B 3x8(BLK Ni)
2-B M3x6
2-B M3x8
NM4
M4x8
2-PTT 3x8
PTT 3x8
B M4x8
4-PTT 3x8 (BLK Ni)
2-PTT 3x8 (BLK Ni)
PTT 3x8
3-PTT
A
B


PTT 3x8
3-PTT 3x8 (BLK Ni)
2-PTT 3x8
8 M4x8
2-PTT 3x8
PTT 3x8
2-B M3x8
PTT 3x8
2-PTT 3x8
2-PTT 3x8
2-PTT 3x8
2-PTT 3x8
2-PTT 3x8
3-PTT 3x8
2-PTT 3x8
2-PTT 3x8
2-PTT 3x8
2-PTT 3x8
N M3
N M3
A
B
(BLK Ni)

CONTROL PCB ASS'Y

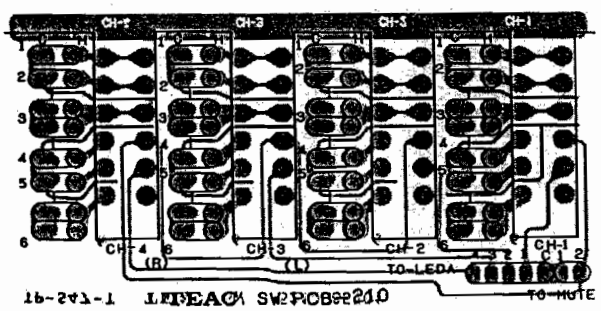


LED A PCB ASS'Y



LED B PCB ASS'Y

SWITCH PCB ASS'Y



DBX PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085100	PCB Assy
	5210085101	PCB
		IC's
U101, U201	5220415000	NJM072D
U102, U202	5220414501	μPC1252H-2
U103, U203	5220414601	μPC1253H-2
U104, U204	5220415000	NJM072D
U105, U205	5220414501	μPC1252H-2
U106, U206	5220414601	μPC1253H-2
		TRANSISTORS
Q101, Q201	5230775000	2SC-2878B
Q104, Q204	5230775000	2SC-2878B
Q105, Q205	5145151000	2SC-1815GR
Q106, Q206	5230775000	2SC-2878B
Q109, Q209	5230775000	2SC-2878B
Q110, Q210	5145151000	2SC-1815GR
		CARBON RESISTORS
		All resistors are rated ±5% tolerance at ¼ watt, unless otherwise noted.
R101, R201	5240032420	56kΩ
R102, R202	5240034020	270kΩ
R103, R203	5240034820	560kΩ
R104, R204	5240030820	12kΩ
R105, R205	5240030620	10kΩ
R106, R206	5240030620	10kΩ
R107, R207	5241151800	33kΩ Metalized
R108, R208	5241150600	10kΩ
R109, R209	5240025120	51Ω
R110, R210	5240033020	100kΩ
R111, R211	5240030620	10kΩ
R112, R212	5240029620	3.9kΩ
R115, R215	5241150600	10kΩ Metalized
R116, R216	5241151800	33kΩ Metalized
R117, R217	5240032220	47kΩ
R118, R218	5240026620	220Ω
R119, R219	5240032520	62kΩ
R120, R220	5240033820	220kΩ
R121, R221	5240029020	2.2kΩ
R122, R222	5240029220	2.7kΩ
R123, R223	5240030220	6.8kΩ
R124, R224	5240029820	4.7kΩ
R125, R225	5241149200	2.7kΩ Metalized
R126, R226	5241151500	24kΩ Metalized
R127, R227	5240024220	22Ω
R128, R228	5240177800	10MΩ
R129, R229	5240177800	10MΩ
R130, R230	5240033620	180kΩ
R131, R231	5240028220	1kΩ
R132, R232	5240235800	1.5MΩ
R133, R233	5240073820	220kΩ
R134, R234	5240023420	10Ω
R135, R235	5240032020	39kΩ
R136, R236	5240031420	22kΩ
R137, R237	5183562000	22Ω Nonflamable
R138, R238	5183562000	22Ω Nonflamable
R139, R239	5240030620	10kΩ
R140, R240	5240030620	10kΩ
R141, R241	5240032420	56kΩ
R142, R242	5240030620	10kΩ
R143, R243	5240030620	10kΩ
R144, R244	5240030620	10kΩ
R145, R245	5241151800	33kΩ Metalized
R146, R246	5241150600	10kΩ Metalized
R147, R247	5240025120	51Ω
R148, R248	5240173000	100kΩ

REF. NO.	PARTS NO.	DESCRIPTION
R149, R249	5240030620	10kΩ
R150, R250	5240029620	3.9kΩ
R153, R253	5241150600	10kΩ Metalized
R154, R254	5241151800	33kΩ Metalized
R155, R255	5240032220	47kΩ
R156, R256	5240026620	220Ω
R157, R257	5240032520	62kΩ
R158, R258	5240033820	220kΩ
R159, R259	5240029020	2.2kΩ
R160, R260	5240029220	2.7kΩ
R161, R261	5240030220	6.8kΩ
R162, R262	5240029820	4.7kΩ
R163, R263	5241149200	2.7kΩ Metalized
R164, R264	5241151500	24kΩ Metalized
R165, R265	5240024220	22Ω
R166, R266	5240177800	10MΩ
R167, R267	5240177800	10MΩ
R168, R268	5240033620	180kΩ
R169, R269	5240028220	1kΩ
R170, R270	5240235800	1.5kΩ
R171, R271	5240073820	220kΩ
R172, R272	5240023420	10Ω
R173, R273	5240032020	39kΩ
R174, R274	5240031420	22kΩ
R175, R275	5183562000	22Ω Nonflamable
R176, R276	5183562000	22Ω Nonflamable
R177, R277	5240030620	10kΩ
R178, R278	5240030620	10kΩ

CAPACITORS

C101, C201	5054899500	Mylar	0.027μF	100V	5%
C102, C202	5054899500	Mylar	0.027μF	100V	5%
C103, C203	5263107200	Polypro.	560pF	100V	5%
C104, C204	5054896500	Mylar	0.0015μF	100V	5%
C105, C205	5172802000	Polyst.	82pF	50V	5%
C106, C206	5263163413	Metalized	1μF	50V	5%
C107, C207	5054877500	Myler	0.01μF	100V	5%
C109, C209	5263105400	Polypro.	100pF	100V	5%
C110, C210	5263105400	Polypro.	100pF	100V	5%
C111, C211	5173018000	Elec.	22μF	16V	
C112, C212	5263162013	Metalized	0.068μF	50V	5%
C113, C213	5263162013	Metalized	0.068μF	50V	5%
C114, C214	5054881500	Mylar	0.0033μF	100V	5%
C115, C215	5054881500	Mylar	0.0033μF	100V	5%
C116, C216	5263107200	Polypro.	560μF	100V	5%
C117, C217	5263162313	Metalized	0.12μF	50V	5%
C118, C218	5054881500	Mylar	0.0033μF	100V	5%
C119, C219	5260160750	Elec.	1μF	50V	20%
C120, C220	5260227010	Elec. LL (K)	10μF	35V	10%
C121, C221	5173010000	Elec.	10μF	16V	
C122, C222	5173036000	Elec.	47μF	16V	
C123, C223	5173036000	Elec.	47μF	16V	
C124, C224	5173004000	Elec.	4.7μF	25V	
C125, C225	5263107200	Polypro.	560pF	100V	5%
C126, C226	5054896500	Mylar	0.0015μF	100V	5%
C127, C227	5172802000	Polyst.	82pF	50V	5%
C128, C228	5263163413	Metalized	1μF	50V	5%
C129, C229	5263106100	Polypro.	200pF	100V	5%
C131, C231	5054877500	Mylar	0.01μF	100V	5%
C132, C232	5263105400	Polypro.	100μF	100V	5%
C133, C233	5173018000	Elec.	22μF	16V	
C134, C234	5263162013	Metalized	0.068μF	50V	5%
C135, C235	5263162013	Metalized	0.068μF	50V	5%
C136, C236	5054881500	Mylar	0.0033μF	100V	5%
C137, C237	5054881500	Mylar	0.0033μF	100V	5%
C138, C238	5263107200	Polypro.	560μF	100V	5%
C139, C239	5263162313	Metalized	0.12μF	50V	5%
C140, C240	5054881500	Mylar	0.0033μF	100V	5%
C141, C241	5260160750	Elec.	1μF	50V	20%
C142, C242	5260227010	Elec. LL (K)	10μF	35V	10%
C143, C243	5173010000	Elec.	10μF	16V	
C144, C144	5173036000	Elec.	47μF	16V	
C145, C245	5173036000	Elec.	47μF	16V	

REF. NO.	PARTS NO.	DESCRIPTION
C301, C302	5173036000	Elec. 47μF 16V
C303~C306	5054204000	Ceramic 0.01μF 50V 10%
		VARIABLE RESISTORS
VR11, VR21	5280062101	Semi-fixed 47kΩ (B)
VR12, VR22	5280062101	Semi-fixed 47kΩ (B)
VR13, VR23	5280122701	Semi-fixed 470kΩ (B)
VR14, VR24	5280062101	Semi-fixed 47kΩ (B)
VR15, VR25	5280062101	Semi-fixed 47kΩ (B)
VR16, VR26	5280122701	Semi-fixed 470kΩ (B)
		MISCELLANEOUS
P101, P102	5122132000	Connector Plug, 8P
P103	5122131000	Connector Plug, 7P
TP1 ~ TP4	5544750000	Pin

POWER SUPPLY PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085201	PCB Assy [J, US, C, GE]
	5200085211	PCB Assy [E, UK, A]
	5210085201	PCB
		DIODES
D301	5228005000	W02
D302, D303	5042517000	1S2473VE
D304, D305	5042517000	1S2473VE
D306	5228005000	W02
		CARBON RESISTOR
R301	5240167800	680Ω 5% ¼W
		CAPACITORS
C307	5263164100	Metalized 0.01μF 250V 10%
C308, C309	5173082000	Elec. 1000μF 25V 10%
C310, C311	5173010000	Elec. 10μF 16V
C312, C313	5054204000	Ceramic 0.01μF 50V 10%
C314	5263164100	Metalized 0.01μF 250V 10%
C315	5173072000	Elec. 470μF 16V
C316	5054204000	Ceramic 0.01μF 50V 10%
		FUSES
F1, F2	5041138000	Mini, T-Lug 500mA 250V [E, UK, A]
F3	5142182000	Mini, T-Lug 200mA 250V [E, UK, A]
	5142087000	Holder
		MISCELLANEOUS
	5181763000	Jumper Wire

MUTING PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085310	PCB Assy
	5210085301	PCB
		TRANSISTORS
Q301	5145151000	2SC-1815GR
Q302, Q303	5145150000	2SC-1015GR
Q304	5145151000	2SC-1815GR
Q305	5145150000	2SA-1015GR
		DIODES
D308, D309	5042517000	1S2473VE
D314	5042517000	1S2473VE
		CARBON RESISTORS
		All resistors are rated ±5% tolerance at ¼ watt.
R302	5240171400	22kΩ
R303	5240170600	10kΩ
R305	5240172200	47kΩ
R306	5240171400	22kΩ
R307	5240173000	100kΩ
R308	5240172200	47kΩ
R309~R311	5240173000	100kΩ
R312	5240171400	22kΩ
R313	5240173000	100kΩ
R314	5240172200	47kΩ
		CAPACITORS
C318	5173010000	Elec. 10μF 16V
C319	5173045000	Elec. 100μF 16V
C320	5173011000	Elec. 10μF 25V

[U]: U.S.A. [C]: CANADA [GE]: General Export [A]: AUSTRALIA [E]: EUROPE [UK]: U.K. [J]: JAPAN

CONTROL PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200098900	PCB Assy
	5210098900	PCB
		IC's
U001	5220417000	LM393P
U002	5228008600	EE-CF1
		TRANSISTOR
Q001	5145150000	2SA1015GR
		DIODE
D001	5042213000	IN60
		CARBON RESISTORS
		All resistors are rated ±5% tolerance at ¼ watt.
R001, R002	5240171800	33k
R003	5240174200	330k
R004	5240170400	8.2k
R005	5240168000	820Ω
R006	5240167000	330Ω
R007	5240171400	22k
		CAPACITORS
C001, C002	5260162550	Chemical 10μF 16V
C003	5260161150	Chemical 2.2μF 50V
C004	5260163252	Chemical 22μF 10V
		MISCELLANEOUS
	5355059400	Wire

LED A PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085500	PCB Assy (DX-2D)
	5200085400	PCB Assy (DX-4D)
	5210085400	PCB
		DIODES
D312, D313	5225010100	LED, SPL-155B (DX-2D)
D310~D313	5225010100	LED, SPL-155B (DX-4D)
		CARBON RESISTORS
R317, R318	5240027820	680Ω 5% R10 (1/8W) (DX-2D)
R315~R318	5240027820	680Ω 5% R10 (1/8W) (DX-4D)
		MISCELLANEOUS
	5122373000	Connector Socket, 2P

LED B PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085601	PCB Assy
	5210085601	PCB
		DIODE
D307	5225010100	Diode, LED, SLP-155B
		MISCELLANEOUS
	5122373000	Connector Socket, 2P

SWITCH PCB ASS'Y

REF. NO.	PARTS NO.	DESCRIPTION
	5200085700	PCB Assy (DX-2D)
	5200085800	PCB Assy (DX-4D)
	5210085701	PCB
		MISCELLANEOUS
S1, S2	5300029100	Switch, Push, 2-4N (DX-2D)
S1~S4	5300029200	Switch, Push, 4-4N (DX-4D)

JACK PCB ASS'Y

(PC Board omitted)

REF. NO.	PARTS NO.	DESCRIPTION
	5200085900	PCB Assy
	5210085900	PCB
		MISCELLANEOUS
	5330507200	4P-Pin Jack

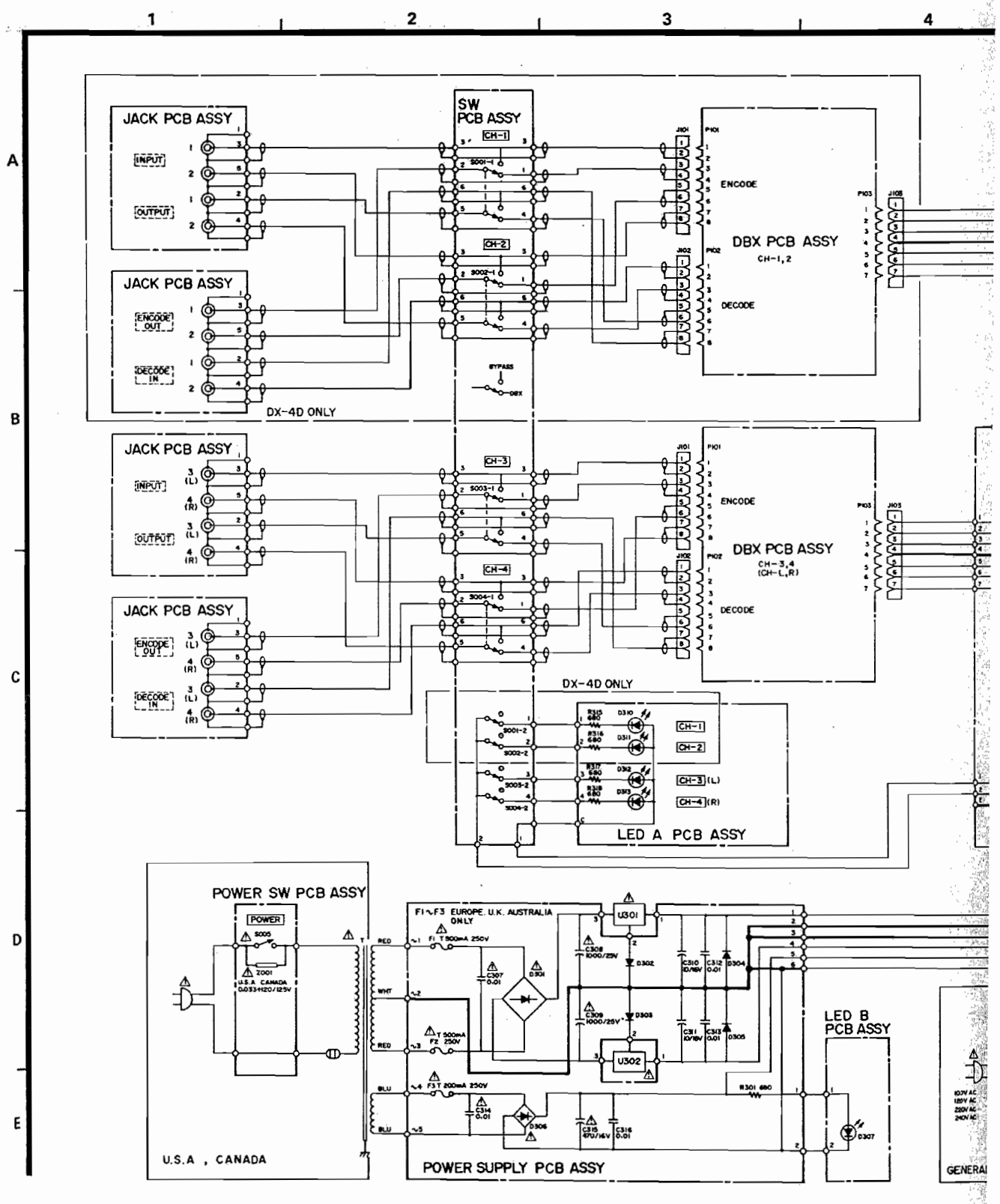
POWER SWITCH PCB ASS'Y

(PC Board omitted)

REF. NO.	PARTS NO.	DESCRIPTION
	5210093600	PCB, Power Switch

9. CIRCUIT DIAGRAM

9-1. Interconnect Circuit Diagram — Power Supply, Muting Circuits



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POWER SUPPLY PCB

U301	NJM78M12A
U302	UA79M12A-UC
D301, D306	W02
D302~D305	IS2473
D307, D310~D313	SLP-1558

MUTING PCB

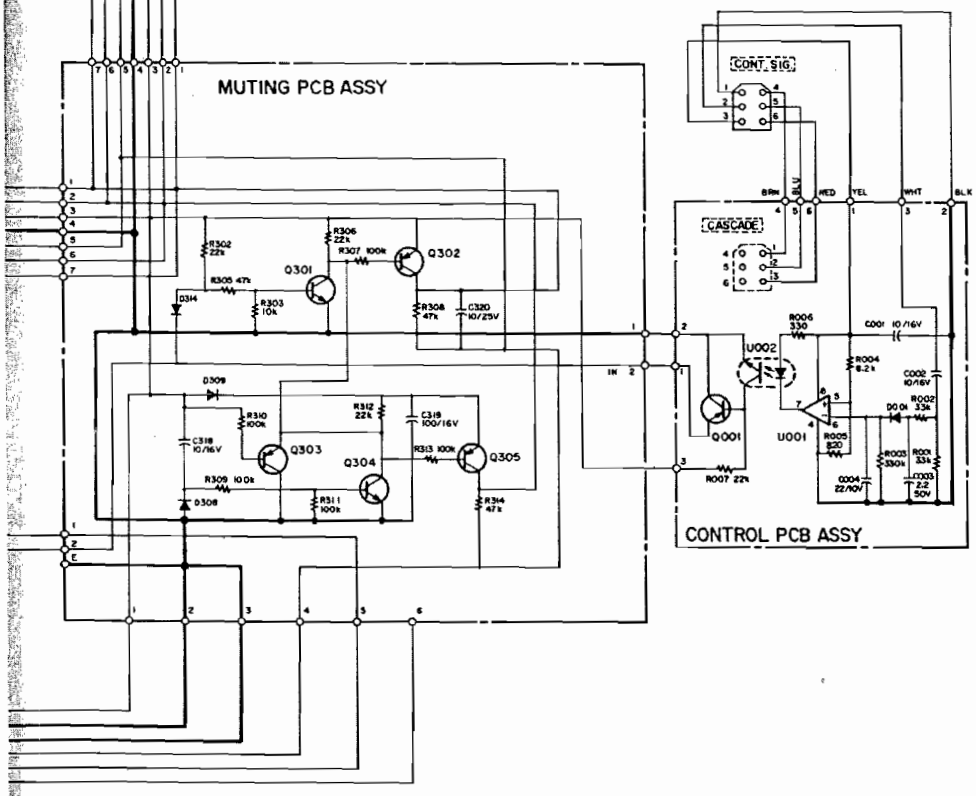
Q301, Q304	2SC1815GR
Q302, Q303	2SA1015GR
Q305	
D308, D309, D314	IS2473

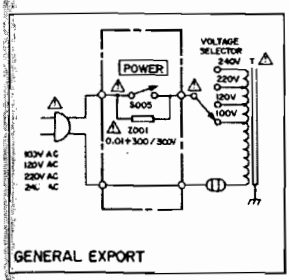
CONTROL PCB

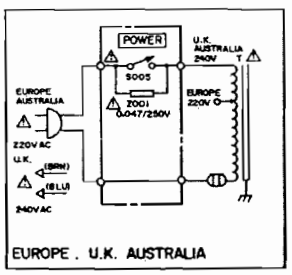
Q001	2SA1015
U001	LM393P
U002	EE-CF1
D001	IN60

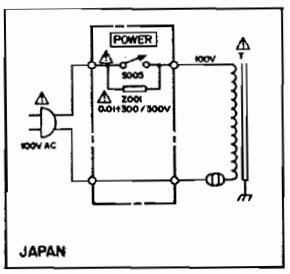
NOTES

1. ALL RESISTORS ARE 1/4 WATT, 5 %, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k = 1,000 OHMS, M = 1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p = PICOFARADS).
3. ⚠ PARTS MARKED WITH THIS SIGN ARE SAFETY CRITICAL COMPONENTS. THEY MUST ALWAYS BE REPLACED WITH IDENTICAL COMPONENTS — REFER TO THE TEAC PARTS LIST AND ENSURE EXACT REPLACEMENT.
4. (L) AND (R) INDICATE DX-2D CIRCUITS.

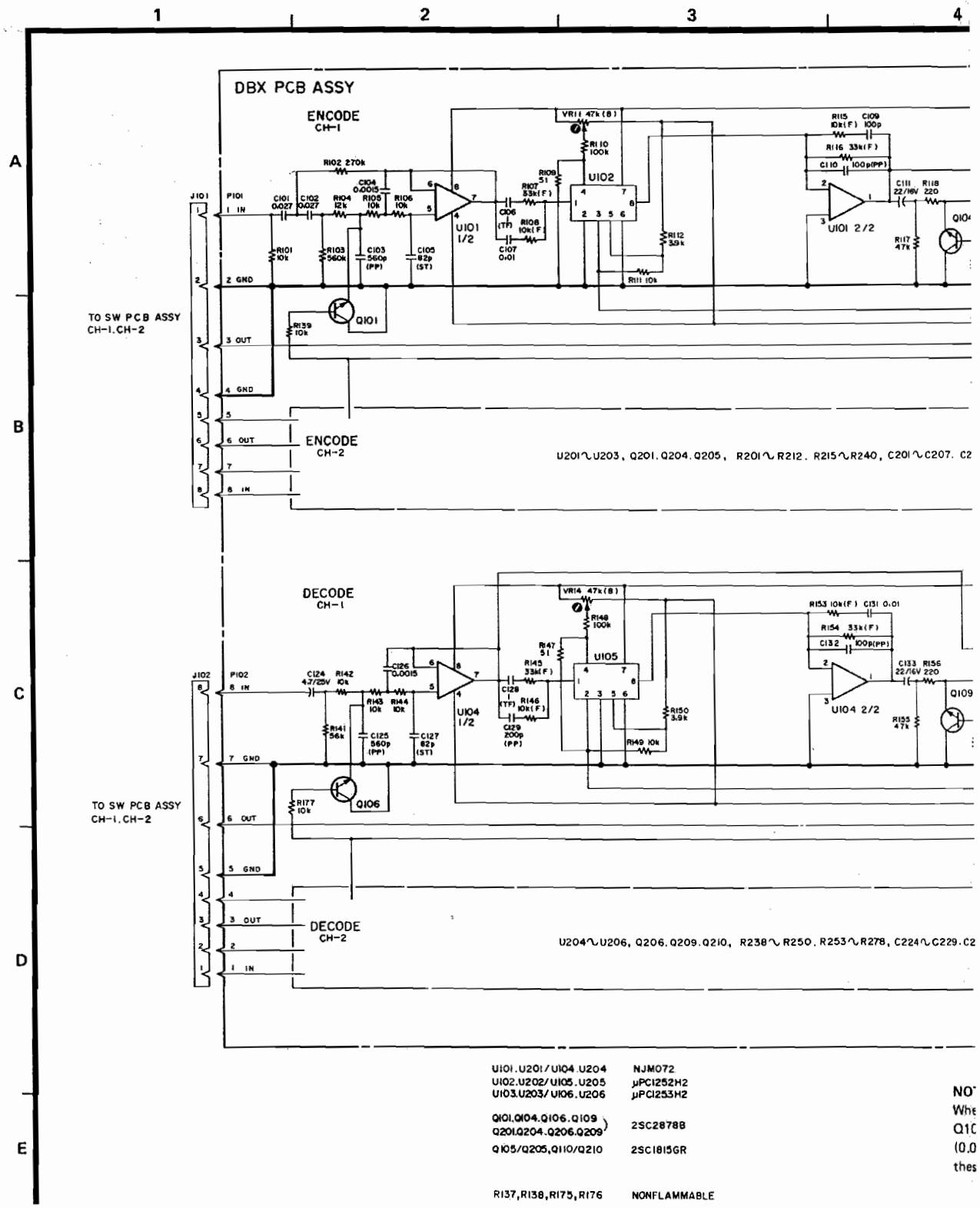


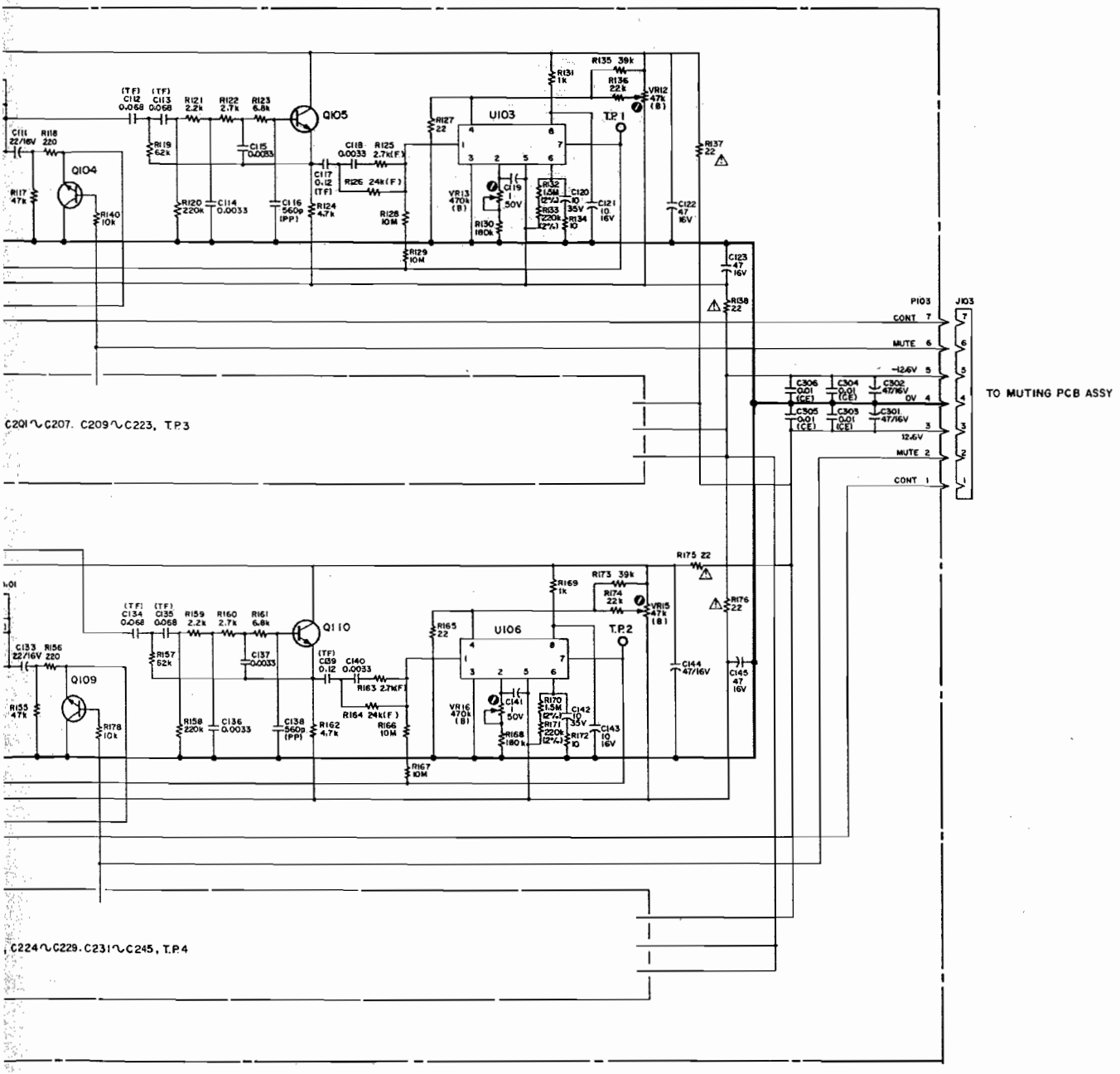






9-2. DBX Amplifier





NOTE

When μPC1252H is used for U102, Q102 (2SC1815GR), Q103 (2SA1015GR), R113 (2.7k), R114 (10k) and C108 (0.001μF) are used. If, however, μPC1215H-2 is utilized, these components are not required and should be excluded.

CAPACITOR DESIGNATORS

(CE) : Ceramic, 0.01 μF
(TF) : Metalized Mylar
(PP) : Polypropylene
(ST) : Sthyrol
No mark: Mylar, Elec.

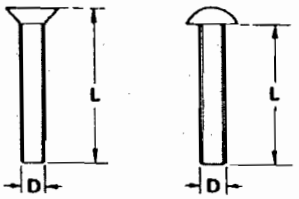
10. ASSEMBLING HARDWARE CODING LIST

All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted.
ISO screws have the head inscribed with a point as in the figure to the right.

FOR EXAMPLE:

B M 3 x 6

- Length in mm (L)
- Diameter in mm (D) *
- Metric System
- Nomenclature



* Inner dia. for washers and nuts

	Code	Name	Type
MACHINE SCREW	R	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	RW	Round Head Wood Screw	
TAPTITE SCREW	PTT	Pan Head Taptite Screw	
	WTT	Washer Head Taptite Screw	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	Name	Type
TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	E	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	N	Hex Nut	

① Remove 3 wires (1, 2 and 3) (unsolder) from Control PCB Assy.

② Connect removed wires 1 and 2 together.

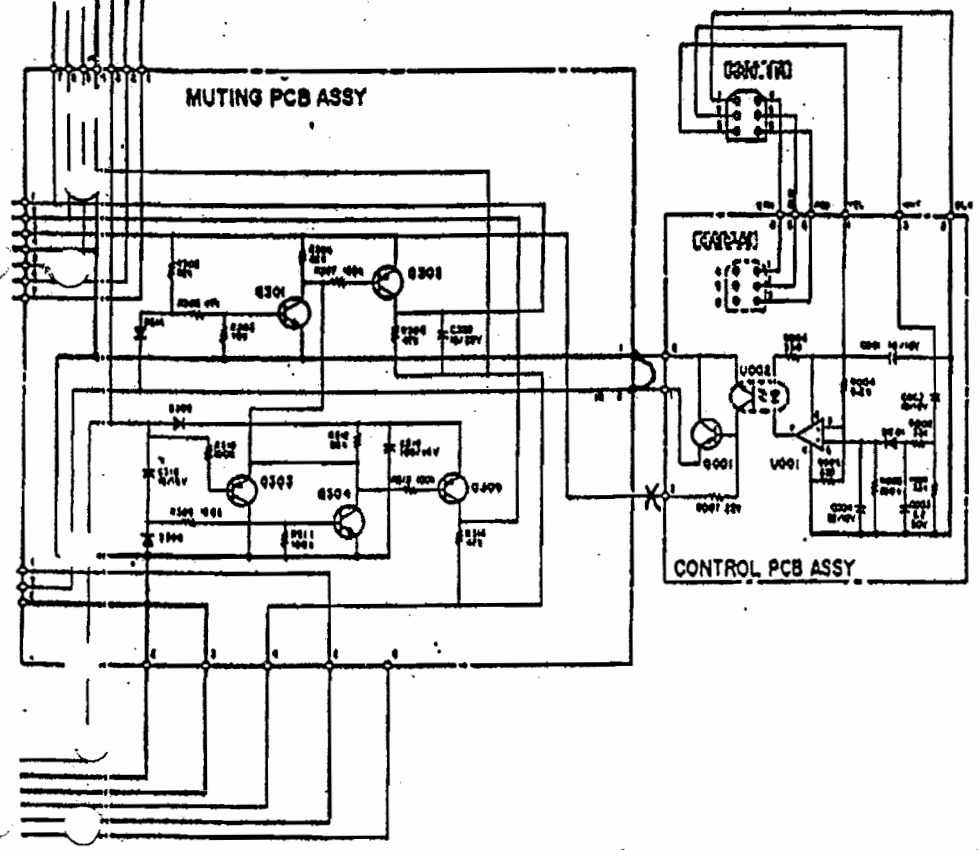
③ Insulate removed wire 3.

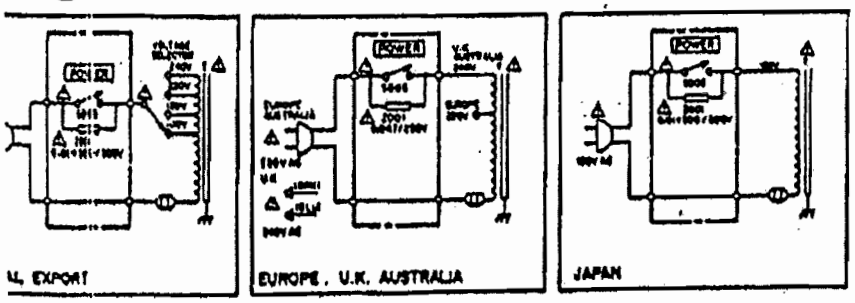
※ Control PCB Assy and CONT SIG c are not used.

POWER SUPPLY PCB

MUTING PCB

CONTROL PCB





NOTES

1. ALL RESISTORS ARE 1/4 WATT, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHM (k = 1,000 OHMS, M = 1,000,000 O
2. ALL CAPACITOR VALUES ARE I MICROFARADS (p = PICOFARAD
3. ⚠ PARTS MARKED WITH THIS ARE SAFETY CRITICAL COMPON THEY MUST ALWAYS BE REPLA WITH IDENTICAL COMPONENTS REFER TO THE TEAC PARTS LIS ENSURE EXACT REPLACEMENT.
4. (L) AND (R) INDICATE DX-20 CIR

DX-2D/DX-4

DBX Noise Reduction Syste